	Type	L #	Hits	Search Text
1	BRS	L1	1	5095500.pn.
2	BRS	L2	895	455/424,67.1.ccls.
3	BRS	L3	127509	degrade$1
4	BRS	L4	329666	beam
5	BRS	L5	4524	3 same 4
6	BRS	L6	1	2 and 5
7	BRS	L7	70861	antenna
8	BRS	L8	1632	3 same 7
9	BRS	L9	16	2 and 8
10	BRS	L10	505	degrade$1 near3 service
11	BRS	L11	8	2 and 10
12	BRS	L12	352	455/562.ccls.
13	BRS	L13	1	10 and 12
14	BRS	L14	122	subsector
15	BRS	L15	90	sub adj sector
16	BRS	L16	0	2 and 14
17	BRS	L17	591	drop$3 adj call
18	BRS	L18	34	2 and 17
19	BRS	L19	3807	quality adj2 service
20	BRS	L20	19	12 and 19
21	BRS	L21	0	14 same 19

	DBs	Time Stamp	Comments	Error Definition
1	USPAT; US-PGPUB	2002/01/12 12:33		
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18	USPAT; US-PGPUB	2002/01/12 13:05		
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20	USPAT; US-PGPUB	2002/01/12 13:06		
21	USPAT; US-PGPUB	2002/01/12 13:20		

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United States Patent [19]

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[54] **AUTOMATED QUALITY ASSESSMENT SYSTEM FOR CELLULAR NETWORKS**

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[21] Appl. No.: **204,619**

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[51] **Int. Cl.**[6] **H04M 11/00**

[52] **U.S. Cl.** **379/59**

[58] **Field of Search** 379/59, 34, 27, 379/29, 1, 22, 24, 416; 455/33.1, 67.1, 67.4, 54.2

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Attorney, Agent, or Firm—Augustus G. Douvas

[57] **ABSTRACT**

An automated system that assesses the quality of service provided by a cellular radiotelephone system. The system uses apparatus located at a mobile station that remotely controls apparatus located at a fixed station. A cellular radiotelephone call is placed from the mobile station which is received at the fixed station. When the connection is established, commands are sent from the mobile station to the fixed station that configure and control the operation of the fixed station. Many calls between the mobile station and the fixed station are placed and received by the mobile station each under control of the mobile station. During each call, recordings are made of the progress of the call and the audio quality measurements obtained during the call from both the mobile and fixed stations perspectives. Audio quality measurements are made utilizing enhanced audio quality measurement techniques that allows simultaneous measurements of audio quality in both the uplink and downlink channels of a cellular radiotelephone call utilizing two test tones instead of the single test tone that is normally used. The results of a number of cellular radiotelephone calls are later combined to form a set of statistical indicators that effectively represent the quality of service provided by a cellular radiotelephone system. The system provides means for comparing the quality of service provided by competing cellular radiotelephone service providers and for comparing the quality of service provided by differing cellular radiotelephone technology types.

12 Claims, 31 Drawing Sheets